2004 ACCESSORIES/SAFETY EQUIPMENT

Mercedes-Benz - Air Bag Restraint Systems

DESCRIPTION & OPERATION

WARNING: **Accidental air bag deployment is possible. Personal injury may result. Read and follow all WARNINGS and AIR BAG SAFETY PRECAUTIONS before working on air bag system or related components.**

The main components of Supplemental Restraint System (SRS) are dual-stage driver-side and passenger-side air bag modules, side impact air bag modules, head impact air bag modules, SRS control module, side impact sensors, AIR BAG warning light, driver-side and passenger-side Emergency Tensioning Retractors (ETR). See **COMPONENT LOCATIONS** .

COMPONENT LOCATIONS

COMPONENT LOCATIONS

Component	Location
AIR BAG warning light	Instrument Panel Cluster
Clockspring	Under steering wheel
Driver-side air bag module	On steering wheel
Emergency Tensioning Retractor (ETR)	Driver-side & passenger-side lower B- & C-pillars
Head impact air bag modules	Driver-side & passenger-side roof rails
Passenger-side air bag module	Passenger-side instrument panel
Side impact air bag modules	In front & rear doors
Side impact sensors	On floor near driver-side & passenger-side B-pillars

SERVICING

SRS AIR BAG label on driver-side door latch post indicates SRS replacement date for air bag units. All SRS components must be thoroughly inspected, including wiring harness. Before component replacement, check for SRS fault codes by performing system operation check. See **SYSTEM OPERATION CHECK** . SRS service life is 10 years from manufactured date or 10 years from SRS replacement date after accident related repairs are completed.

SYSTEM OPERATION CHECK

AIR BAG warning light indicates SRS and Emergency Tensioning Retractor (ETR) system readiness. Turn ignition on. AIR BAG warning light will illuminate, then turn off after 4-20 seconds indicating SRS system is functioning properly. If AIR BAG warning light does not illuminate, illuminates while driving or is continuously illuminated, there is a system fault. Repair malfunctioning system.

AIR BAG SAFETY PRECAUTIONS

Observe these precautions when servicing the air bag system:

- When working around SRS components and before any repairs are performed, disable air bag system. See **DISABLING & ACTIVATING AIR BAG SYSTEM** .
- Before straightening any damage to body, or before performing electrical arc-welding, disable air bag system. See **DISABLING & ACTIVATING AIR BAG SYSTEM** .
- Always wear safety glasses and gloves when handling a deployed air bag module. Air bag module may contain sodium hydroxide deposits which are irritating to the skin.
- Always use control module and impact sensors made by same manufacturer. Using components produced by different manufacturers could cause accidental air bag or ETR deployment.
- DO NOT repair any portion of SRS wiring harness.
- If any SRS component is dropped from a height greater than 1.6 feet (0.5 m), it must be replaced.
- If SRS components show signs of damage, they must be replaced.
- Always handle air bag module with trim cover facing away from your body.
- Always place air bag module on workbench with trim cover up, away from loose objects.
- DO NOT expose any SRS component to temperatures in excess of 212°F (100°C).
- DO NOT expose any SRS component to grease, oil or cleaning agents.

DISABLING & ACTIVATING AIR BAG SYSTEM

DISABLING SYSTEM

Turn ignition off and remove key. Disconnect negative battery cable and shield cable end.

ACTIVATING SYSTEM

Ensure no one is in vehicle. Turn ignition on. Connect negative battery cable. Go to **SYSTEM OPERATION CHECK** .

DISPOSAL PROCEDURES

Several situations may arise requiring some form of disposal action, including:

- Scrapping a vehicle containing deployed air bag modules and ETRs.
- Scrapping a vehicle with live air bag modules and ETRs.
- Disposal of a live but electrically faulty air bag module and/or ETR.
- Disposal of a deployed air bag module and/or ETR.

DEPLOYED AIR BAG MODULE OR EMERGENCY TENSIONING RETRACTOR (ETR)

Deployed air bag modules and ETRs can be disposed of like any other part.

SCRAPPED VEHICLE

Undeployed air bag modules and ETRs cannot be disposed of without first being deployed. Contact manufacturer for additional information.

UNDEPLOYED AIR BAG MODULE OR EMERGENCY TENSIONING RETRACTOR (ETR)

Undeployed air bag modules and ETR seat belts cannot be disposed of without first being deployed. Contact manufacturer for additional information.

ON-VEHICLE DEPLOYMENT (SCRAPPED VEHICLE)

WARNING: **Components are very hot after deployment. Personal injury may result. Allow sufficient time for components to cool before touching.**

NOTE: Deploy only one component at a time.

1. Before proceeding, see **AIR BAG SAFETY PRECAUTIONS** . Park vehicle outdoors with at least 33 feet (10 m) of open space around vehicle. Disable air bag system. See **DISABLING & ACTIVATING AIR BAG SYSTEM** . Place a fully-charged 12-volt battery 33 feet (10 m) from vehicle.
2. Disconnect all air bag module and emergency tensioning retractors (ETR) connectors. See **REMOVAL & INSTALLATION** . Fabricate a deployment harness using 2 wires, each 33 feet (10 m) in length. Connect deployment harness to selected component to be deployed. Twist opposite ends of deployment harness together to prevent accidental deployment. Dual-stage air bag modules will require 2 deployment harnesses.
3. Ensure no one is within 33 feet (10 m) of air bag module. Untwist ends of deployment harness. Connect wires to battery. Component should deploy. Repeat deployment procedure for remaining components.

OFF-VEHICLE DEPLOYMENT

WARNING: **Components are very hot after deployment. Personal injury may result. Allow sufficient time for components to cool before touching.**

1. Before proceeding, see **AIR BAG SAFETY PRECAUTIONS** . Disable air bag system. See **DISABLING & ACTIVATING AIR BAG SYSTEM** . Remove component to be deployed. See **REMOVAL & INSTALLATION** . Place component in the center of an area with at least 33 feet (10 m) of clearance on all sides.
2. Attach component to a appropriate object, such as a tire and wheel assembly, to prevent movement. Fabricate a deployment harness using 2 wires, each 33 feet (10 m) in length. Connect deployment harness to selected component. Twist opposite ends of deployment harness together to prevent accidental deployment. Dual-stage air bag modules will require 2 deployment harnesses.
3. Ensure no one is within 33 feet (10 m) of component. Untwist ends of deployment harness. Connect wires to battery. Component should deploy. Repeat deployment procedure for remaining components.

POST-COLLISION INSPECTION

When a vehicle has been involved in a collision, certain components of the passive restraint system must be

inspected or replaced. See **AIR BAG/SRS COMPONENT INSPECTION & REPLACEMENT TABLES** article in the GENERAL INFORMATION section.

REMOVAL & INSTALLATION

WARNING: **Accidental air bag deployment is possible. Personal injury may result. Read and follow all WARNINGS and AIR BAG SAFETY PRECAUTIONS before working on air bag system or related components.**

CLOCKSPRING

Information is not available.

CONTROL MODULE

Removal & Installation E

1. Before proceeding, see **AIR BAG SAFETY PRECAUTIONS** . Turn ignition key to "O" position. Disable air bag system. See **DISABLING & ACTIVATING AIR BAG SYSTEM** .
2. Remove center console. See **Fig. 1** . Remove sound deadener. Remove ventilation duct. Disconnect connectors from control module. Remove control module bolts. Remove control module.
3. To install, reverse removal procedure. Tighten control module bolts to specification. See **TORQUE SPECIFICATIONS** . Activate air bag system. Program control module. See **DIAGNOSTICS** .

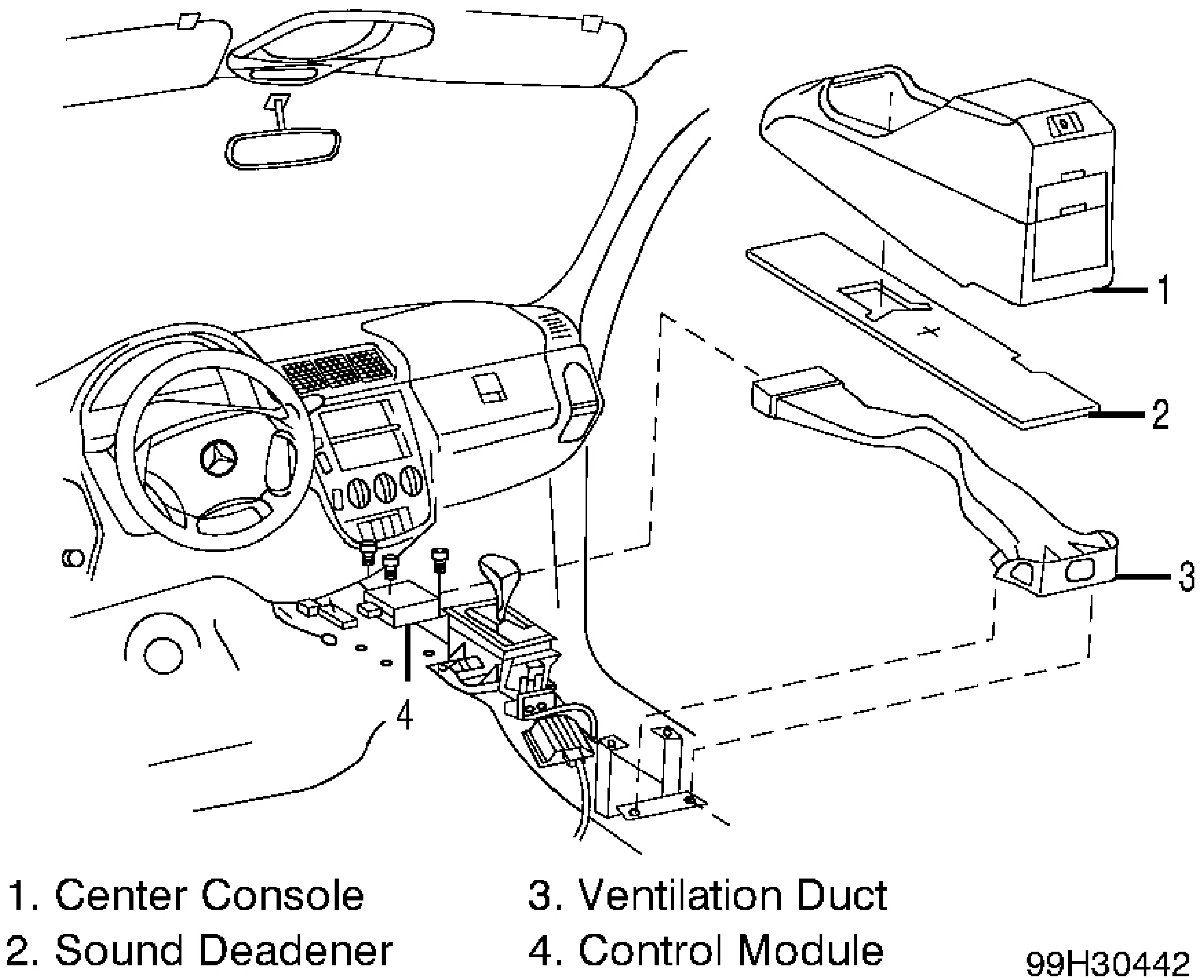


Fig. 1: Identifying Control Module
Courtesy of MERCEDES-BENZ OF NORTH AMERICA.

DRIVER-SIDE AIR BAG MODULE

Removal & Installation

1. Before proceeding, see **AIR BAG SAFETY PRECAUTIONS** . Disable air bag system. See **DISABLING & ACTIVATING AIR BAG SYSTEM** .
2. Using Torx Bit (126-589-00-10-00), remove bolts securing driver-side air bag module to steering wheel from rear of steering wheel. Pull driver-side air bag module away from steering wheel. Disconnect driver-

side air bag module electrical connectors. Remove driver-side air bag module. See **Fig. 2** .

3. To install, reverse removal procedure. Tighten driver-side air bag module bolts to specification. See **TORQUE SPECIFICATIONS** . Activate air bag system. Read diagnostic codes and erase memory. See **DIAGNOSTICS** .

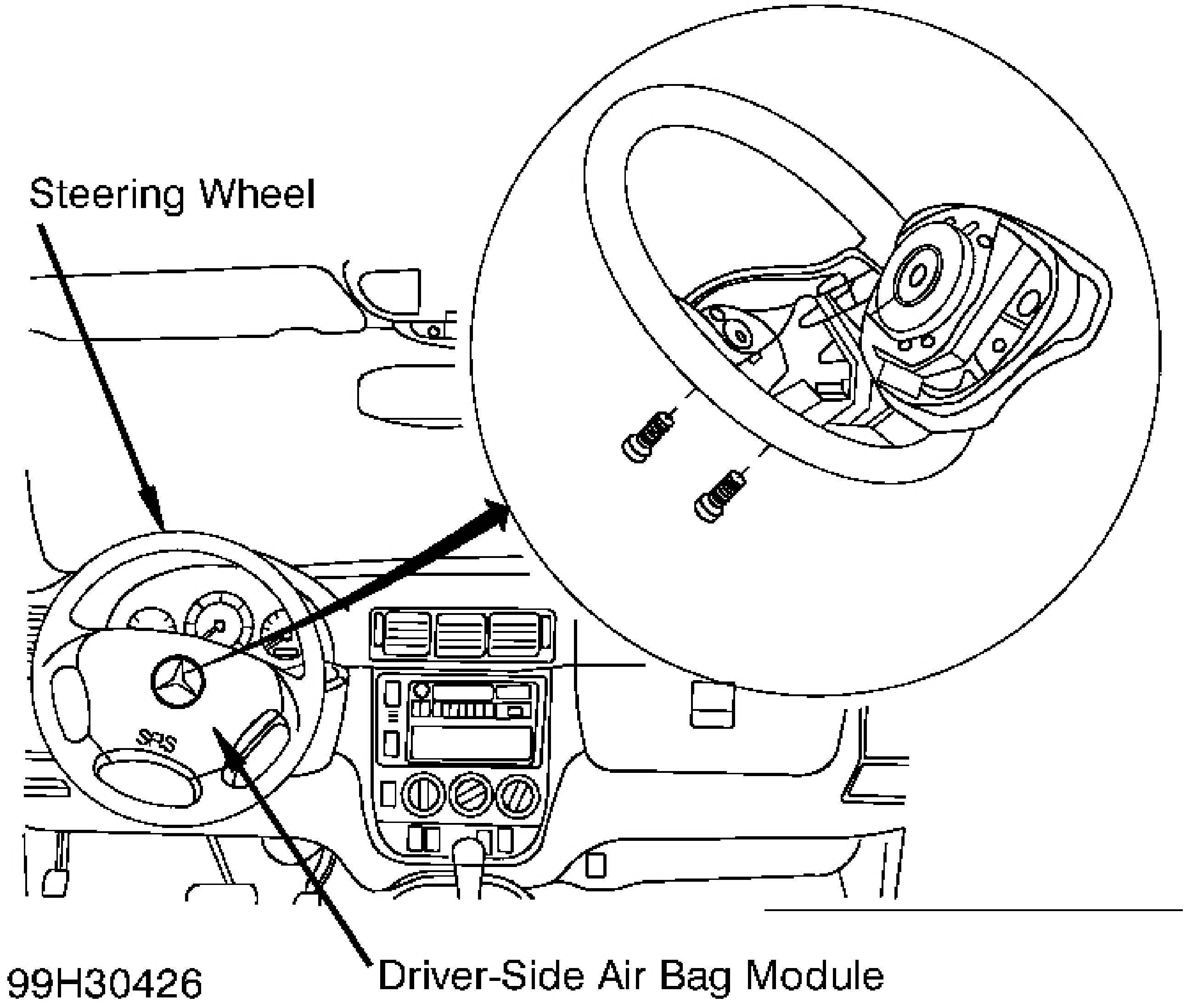


Fig. 2: Identifying Driver-side Air Bag Module
Courtesy of MERCEDES-BENZ OF NORTH AMERICA.

EMERGENCY TENSIONING RETRACTOR (ETR)

Removal & Installation (Front)

1. Before proceeding, see **AIR BAG SAFETY PRECAUTIONS** . Disable air bag system. See **DISABLING & ACTIVATING AIR BAG SYSTEM** .
2. Move appropriate front seat fully forward. Remove lower trim panel from outer edge of seat cushion frame. Remove bolt from seat belt end fitting. Remove end fitting from seat cushion. Remove B-pillar trim panel. Remove bolt from belt height adjuster. Disconnect ETR electrical connector. Remove ETR bolts. Remove ETR.
3. To install, reverse removal procedure. Tighten ETR, seat belt end fitting and belt height adjuster bolts to specification. See **TORQUE SPECIFICATIONS** . Activate air bag system. Read diagnostic codes and erase memory. See **DIAGNOSTICS** .

Removal & Installation (Outer Rear)

1. Before proceeding, see **AIR BAG SAFETY PRECAUTIONS** . Disable air bag system. See **DISABLING & ACTIVATING AIR BAG SYSTEM** .
2. Remove appropriate C-pillar trim panel. Remove bolt from upper seat belt guide bracket. Disconnect ETR connector. Remove bolts from ETR. Remove ETR.
3. To install, reverse removal procedure. Tighten ETR bolts and upper seat belt guide bracket bolt to specification. See **TORQUE SPECIFICATIONS** . Activate air bag system Read diagnostic codes and erase memory. See **DIAGNOSTICS** .

HEAD IMPACT AIR BAG MODULE (OUTER REAR)

Removal & Installation

1. Before proceeding, see **AIR BAG SAFETY PRECAUTIONS** . Disable air bag system. See **DISABLING & ACTIVATING AIR BAG SYSTEM** .
2. Remove headliner. See **HEADLINER** . Disconnect appropriate head impact air bag module electrical connector. Remove screws from rear bracket. Remove screws from front and center brackets. Using Wedge (115-589-03-59-00), remove head impact air bag module from bracket. Remove head impact air bag module.
3. To install, reverse removal procedure. Activate air bag system. Read diagnostic codes and erase memory. See **DIAGNOSTICS** .

HEADLINER

Removal & Installation

1. Before proceeding, see **AIR BAG SAFETY PRECAUTIONS** . Remove edge trim from sliding/pop-up roof. Remove front door seals from A- and B-pillars.
2. Remove A-pillar trim panels. Remove front folding handle. Remove sun visors and mounting clips. Remove upper B-pillar trim panels. Remove cargo net holding point covers. Remove load compartment handles.
3. Remove coat hooks. Remove C-pillar trim panels. Remove upper screws from D-pillar trim panels. Detach rear headliner at roof. Lower headliner until it is supported on front seats. Lower front seat backs rearward until sufficient access to head impact air bag modules is available.

4. To install, reverse removal procedure. Activate air bag system. Read diagnostic codes and erase memory. See **DIAGNOSTICS** .

INSTRUMENT PANEL

Removal & Installation

1. Before proceeding, see **AIR BAG SAFETY PRECAUTIONS** . Disable air bag system. See **DISABLING & ACTIVATING AIR BAG SYSTEM** .
2. Remove glove box. See **Fig. 3** . Remove center trim plate. Remove control head. Remove lower section of instrument panel. Remove A-pillar trim panels. Using Wedge (115-589-03-59-00), remove upper air outlet panel. Remove screws from upper section of instrument panel. Remove instrument panel cluster. Disconnect sun sensor electrical connector. Remove Parktronic display. Disconnect air distribution flap actuator motor connector.
3. Disconnect temperature sensor electrical connector. Remove screws from center of instrument panel. Remove screws from sides of instrument panel. Remove instrument panel.
4. To install, reverse removal procedure. Activate air bag system.

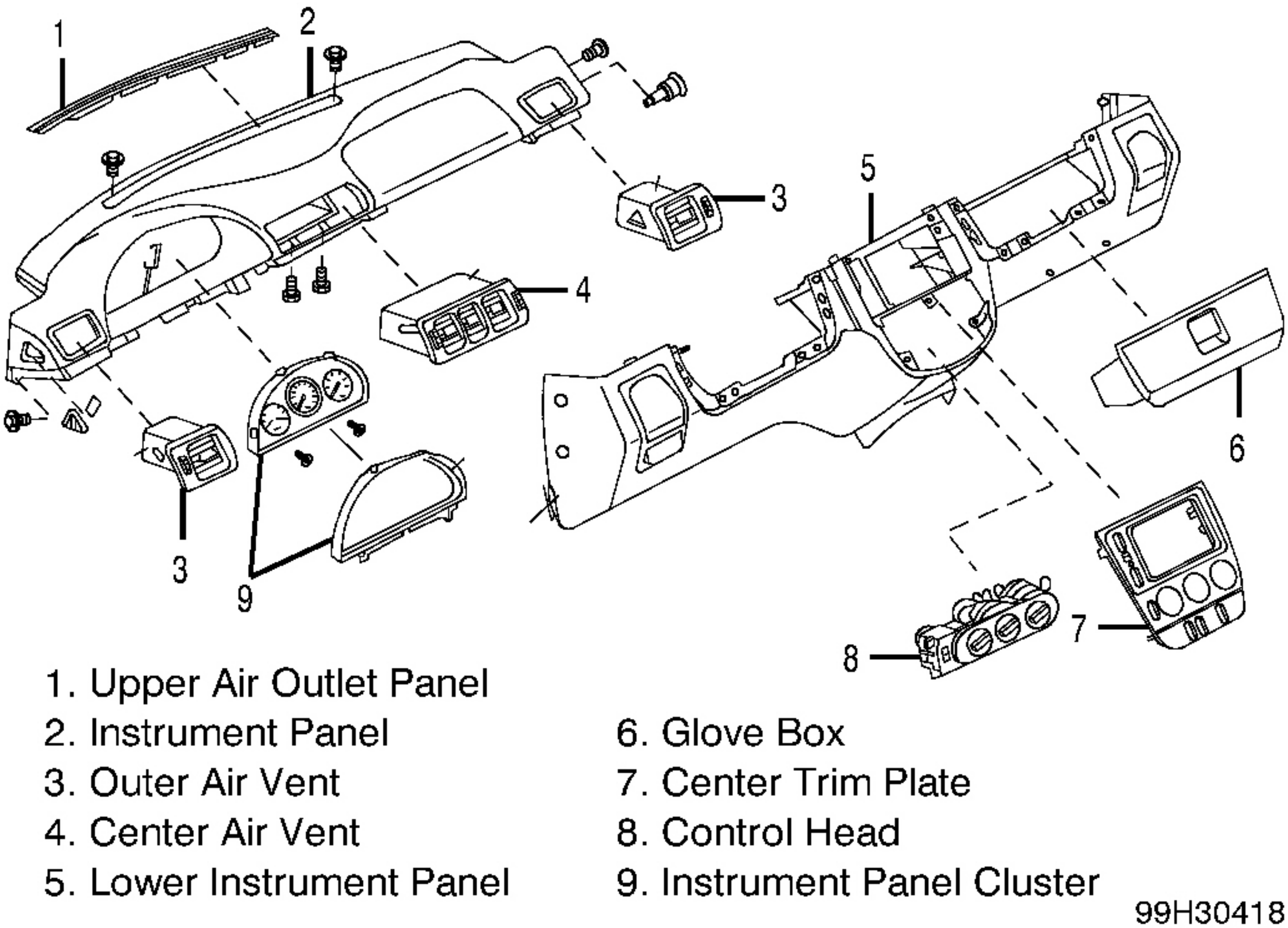


Fig. 3: Identifying Instrument Panel Components
Courtesy of MERCEDES-BENZ OF NORTH AMERICA.

PASSENGER-SIDE AIR BAG MODULE

Removal & Installation

1. Before proceeding, see **AIR BAG SAFETY PRECAUTIONS** . Disable air bag system. See **DISABLING & ACTIVATING AIR BAG SYSTEM** .
2. Remove instrument panel. See **INSTRUMENT PANEL** . Disconnect passenger-side air bag module electrical connectors. Remove passenger-side air bag module nuts. Remove passenger-side air bag module. See **Fig. 4** .
3. To install, reverse removal procedure. Tighten passenger-side air bag module nuts to specification. See **TORQUE SPECIFICATIONS** . Activate air bag system. Read diagnostic codes and erase memory. See **DIAGNOSTICS** .

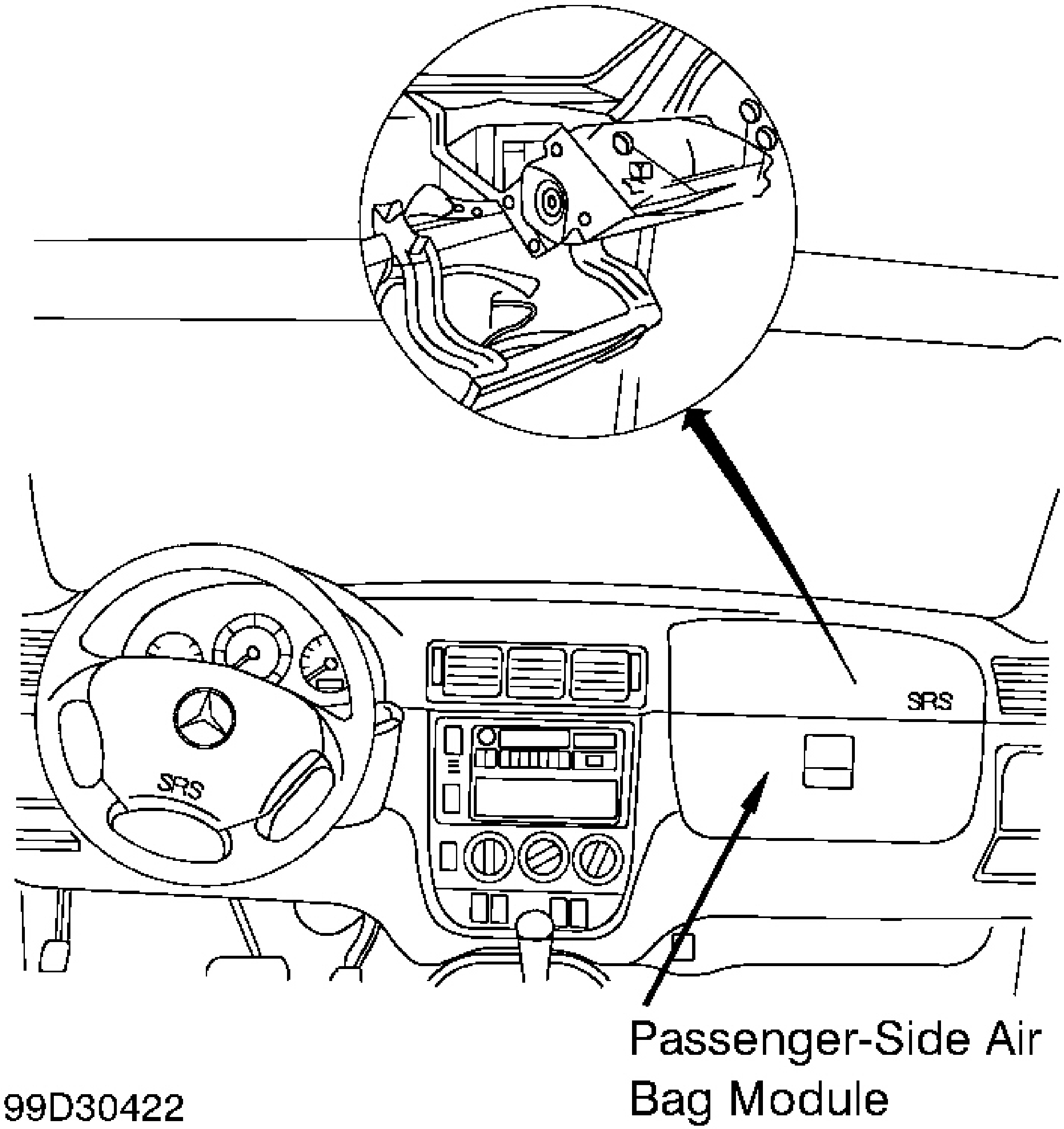


Fig. 4: Identifying Passenger-side Air Bag Module
Courtesy of MERCEDES-BENZ OF NORTH AMERICA.

SIDE IMPACT AIR BAG MODULE

Removal & Installation (Front Door)

1. Before proceeding, see **AIR BAG SAFETY PRECAUTIONS** . Disable air bag system. See **DISABLING & ACTIVATING AIR BAG SYSTEM** .
2. Remove appropriate door trim panel. Remove rivets securing side impact air bag module to front door. Remove side impact air bag module from front door. Disconnect side impact air bag module connector. Remove side impact air bag module. See **Fig. 5** .
3. To install, reverse removal procedure. Activate air bag system. Read diagnostic codes and erase memory. See **DIAGNOSTICS** .

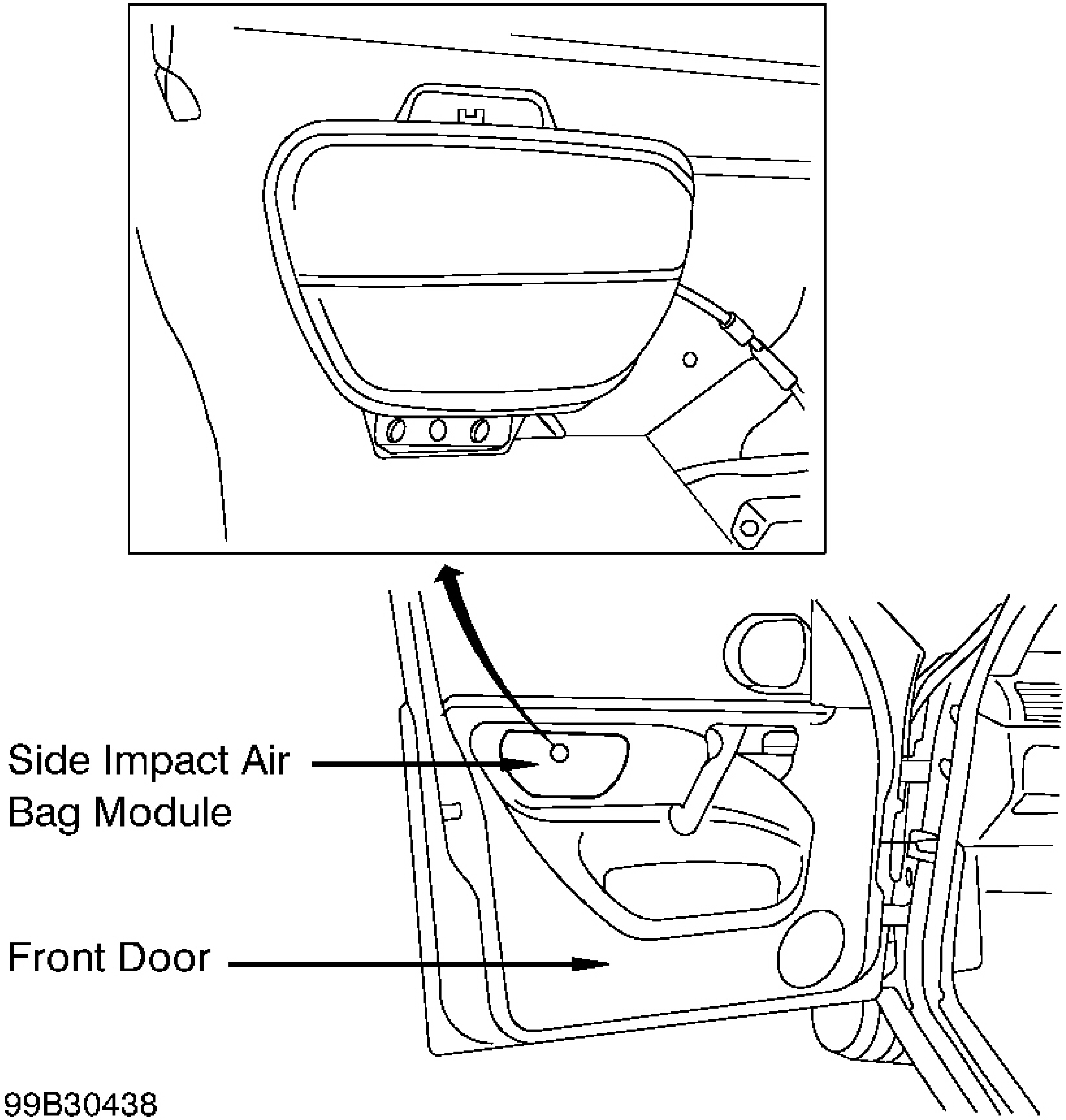


Fig. 5: Identifying Side Impact Air Bag Module (Front Door)
Courtesy of MERCEDES-BENZ OF NORTH AMERICA.

Removal & Installation (Rear Door)

1. Before proceeding, see **AIR BAG SAFETY PRECAUTIONS** . Disable air bag system. See **DISABLING & ACTIVATING AIR BAG SYSTEM** .
2. Remove appropriate door trim panel. Remove rivets securing side impact air bag module to front door. Remove side impact air bag module from front door. Disconnect side impact air bag module connector. Remove side impact air bag module. See **Fig. 6** .
3. To install, reverse removal procedure. Activate air bag system. Read diagnostic codes and erase memory. See **DIAGNOSTICS** .

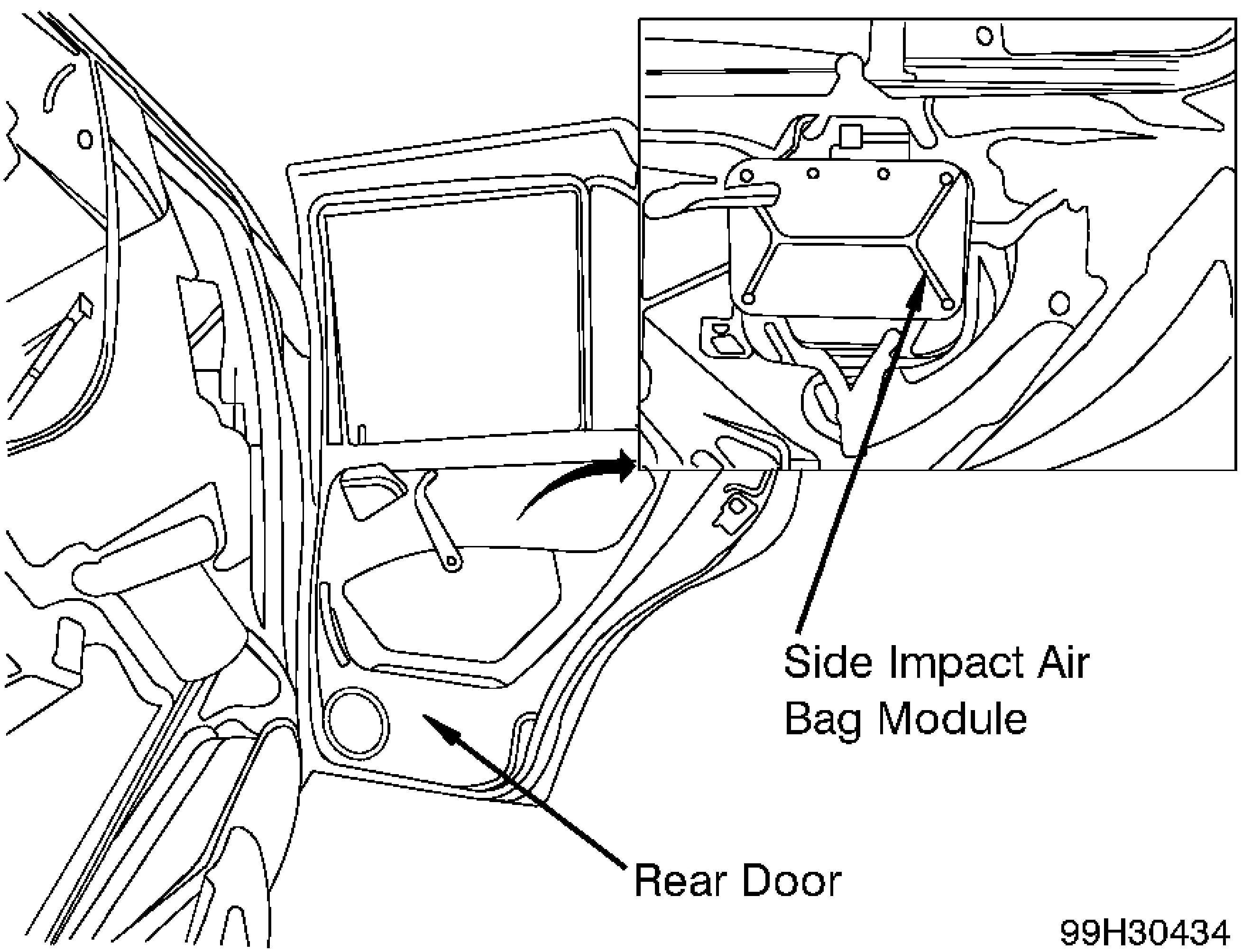


Fig. 6: Identifying Side Impact Air Bag Module (Rear Door)
Courtesy of MERCEDES-BENZ OF NORTH AMERICA.

SIDE IMPACT SENSOR (REAR DOOR)

Removal & Installation

1. Before proceeding, see **AIR BAG SAFETY PRECAUTIONS** . Disable air bag system. See **DISABLING & ACTIVATING AIR BAG SYSTEM** .
2. Remove appropriate side impact sensor cover. Disconnect side impact sensor electrical connector. See **Fig. 7** . Remove side impact sensor screws. Remove side impact sensor.
3. To install, reverse removal procedure. Activate air bag system. Read diagnostic codes and erase memory. See **DIAGNOSTICS** .

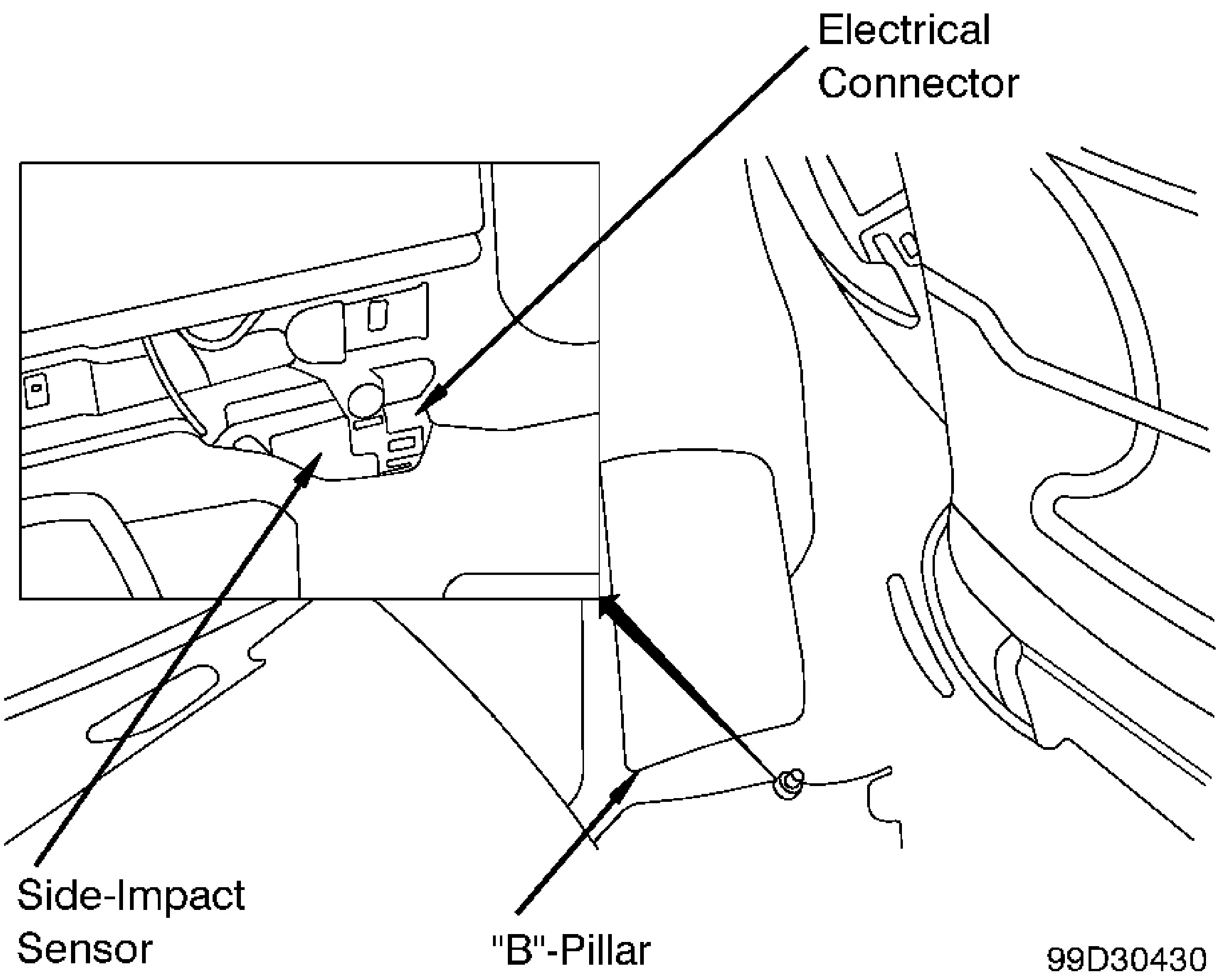


Fig. 7: Identifying Side Impact Sensor

Courtesy of MERCEDES-BENZ OF NORTH AMERICA.

WIRE REPAIR

DO NOT repair wiring harness. Replace complete SRS wiring harness, if any part is damaged.

TORQUE SPECIFICATIONS

TORQUE SPECIFICATIONS

Application	**Ft. Lbs. (N.m)**
Front ETR	
Belt end fitting	26 (35)
Belt height adjuster bolt	18 (25)
Bolts	22 (30)
Rear ETR	
Belt height adjuster bolt	22 (30)
Bolts	22 (30)
	INCH Lbs. (N.m)
Control module bolts	(1)
Driver-side air bag module bolts	71 (8)
Head impact air bag module bolts	71 (8)
Passenger-side air bag module nuts	71 (8)
Side impact sensor screws	(1)
(1) Information is not available.	

DIAGNOSTICS

Air bag system diagnostic information is not available. All air bag system diagnosis must be carried out using manufacturers proprietary STAR diagnostic tool.

WIRING DIAGRAMS

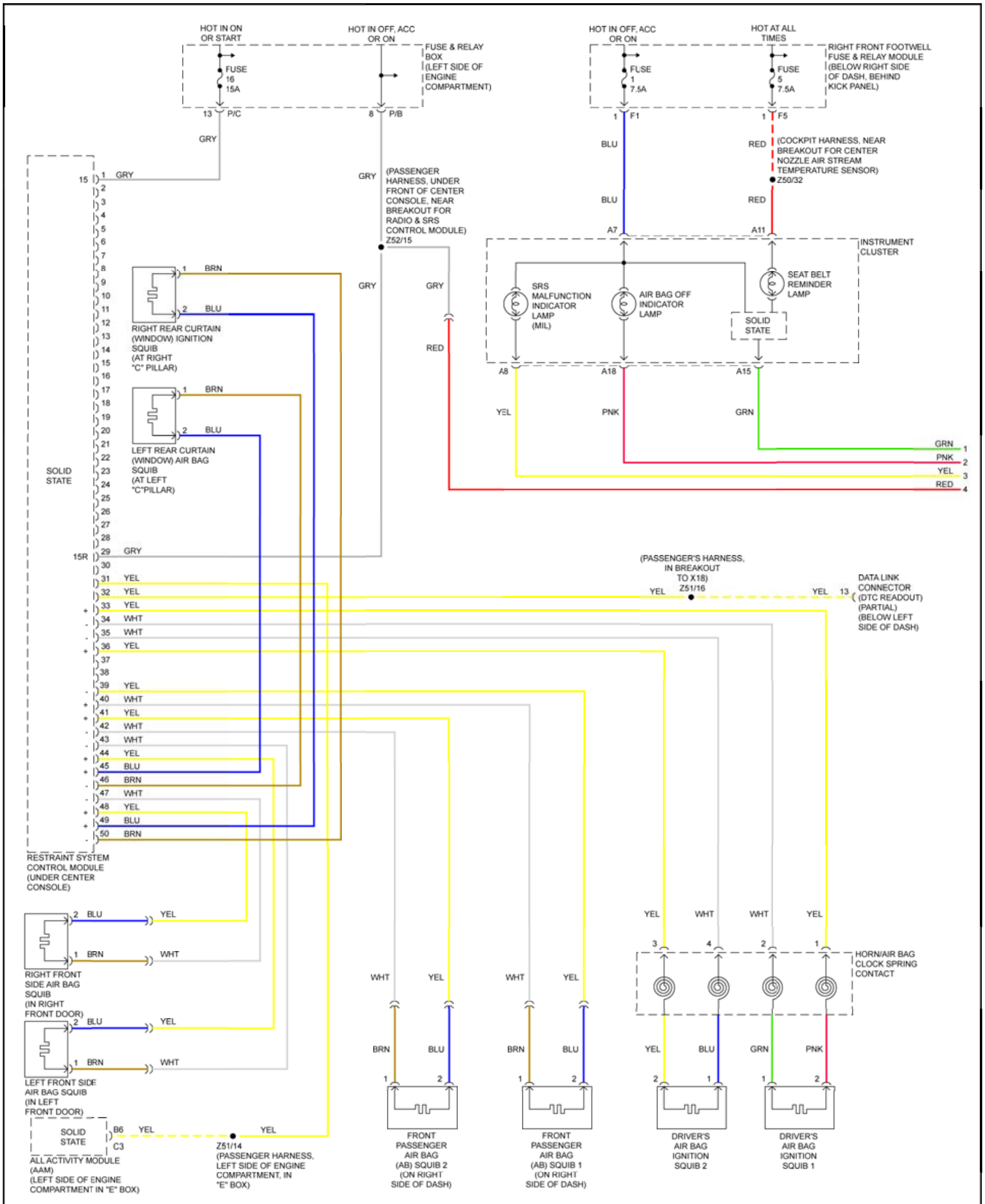

HOT IN ON OR START
HOT IN OFF, ACC OR ON
FUSE 16 15A
FUSE & RELAY BOX (LEFT SIDE OF ENGINE COMPARTMENT)
HOT IN OFF, ACC OR ON
HOT AT ALL TIMES
FUSE 1 7.5A
FUSE 5 7.5A
RIGHT FRONT FOOTWELL FUSE & RELAY MODULE (BELOW RIGHT SIDE OF DASH, BEHIND KICK PANEL)
(COCKPIT HARNESS, NEAR BREAKOUT FOR CENTER NOZZLE AIR STREAM TEMPERATURE SENSOR) Z50/32
(PASSENGER HARNESS, UNDER FRONT OF CENTER CONSOLE, NEAR BREAKOUT FOR RADIO & SRS CONTROL MODULE) Z52/15
INSTRUMENT CLUSTER
SRS MALFUNCTION INDICATOR LAMP (MIL)
AIR BAG OFF INDICATOR LAMP
SEAT BELT REMINDER LAMP
SOLID STATE
RIGHT REAR CURTAIN (WINDOW) IGNITION SQUIB (AT RIGHT "C" PILLAR)
LEFT REAR CURTAIN (WINDOW) AIR BAG SQUIB (AT LEFT "C"PILLAR)
SOLID STATE
RESTRAINT SYSTEM CONTROL MODULE (UNDER CENTER CONSOLE)
(PASSENGER'S HARNESS, IN BREAKOUT TO X18) Z51/16
DATA LINK CONNECTOR (DTC READOUT) (PARTIAL) (BELOW LEFT SIDE OF DASH)
RIGHT FRONT SIDE AIR BAG SQUIB (IN RIGHT FRONT DOOR)
LEFT FRONT SIDE AIR BAG SQUIB (IN LEFT FRONT DOOR)
HORN/AIR BAG CLOCK SPRING CONTACT
SOLID STATE
ALL ACTIVITY MODULE (AAM) (LEFT SIDE OF ENGINE COMPARTMENT IN "E" BOX)
Z51/14 (PASSENGER HARNESS, LEFT SIDE OF ENGINE COMPARTMENT, IN "E" BOX)
FRONT PASSENGER AIR BAG (AB) SQUIB 2 (ON RIGHT SIDE OF DASH)
FRONT PASSENGER AIR BAG (AB) SQUIB 1 (ON RIGHT SIDE OF DASH)
DRIVER'S AIR BAG IGNITION SQUIB 2
DRIVER'S AIR BAG IGNITION SQUIB 1
188440

Fig. 8: Air Bag System Wiring Diagram (ML350, ML500-1 Of 2)

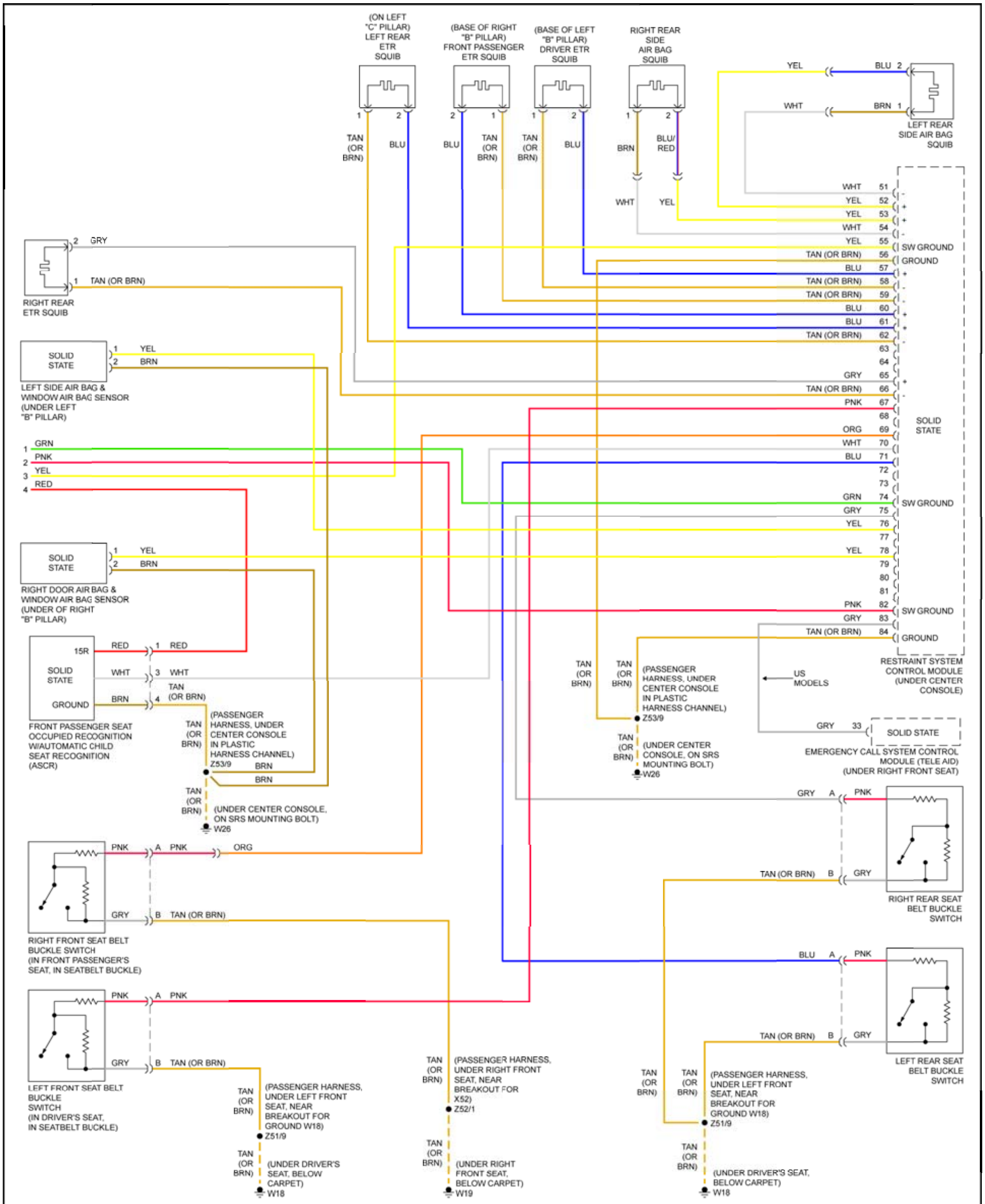

(ON LEFT "C" PILLAR) LEFT REAR ETR SQUIB
(BASE OF RIGHT "B" PILLAR) FRONT PASSENGER ETR SQUIB
(BASE OF LEFT "B" PILLAR) DRIVER ETR SQUIB
RIGHT REAR SIDE AIR BAG SQUIB
LEFT REAR SIDE AIR BAG SQUIB
RIGHT REAR ETR SQUIB
SOLID STATE
LEFT SIDE AIR BAG & WINDOW AIR BAG SENSOR (UNDER LEFT "B" PILLAR)
RIGHT DOOR AIR BAG & WINDOW AIR BAG SENSOR (UNDER OF RIGHT "B" PILLAR)
FRONT PASSENGER SEAT OCCUPIED RECOGNITION W/AUTOMATIC CHILD SEAT RECOGNITION (ASCR)
SW GROUND
GROUND
RESTRAINT SYSTEM CONTROL MODULE (UNDER CENTER CONSOLE)
US MODELS
EMERGENCY CALL SYSTEM CONTROL MODULE (TELE AID) (UNDER RIGHT FRONT SEAT)
(PASSENGER HARNESS, UNDER CENTER CONSOLE IN PLASTIC HARNESS CHANNEL) Z53/9
(UNDER CENTER CONSOLE, ON SRS MOUNTING BOLT) W26
RIGHT REAR SEAT BELT BUCKLE SWITCH
LEFT REAR SEAT BELT BUCKLE SWITCH
RIGHT FRONT SEAT BELT BUCKLE SWITCH (IN FRONT PASSENGER'S SEAT, IN SEATBELT BUCKLE)
LEFT FRONT SEAT BELT BUCKLE SWITCH (IN DRIVER'S SEAT, IN SEATBELT BUCKLE)
(PASSENGER HARNESS, UNDER LEFT FRONT SEAT, NEAR BREAKOUT FOR GROUND W18) Z51/9
(UNDER DRIVER'S SEAT, BELOW CARPET) W18
(PASSENGER HARNESS, UNDER RIGHT FRONT SEAT, NEAR BREAKOUT FOR X52) Z52/1
(UNDER RIGHT FRONT SEAT, BELOW CARPET) W19
188444

Fig. 9: Air Bag System Wiring Diagram (ML350, ML500-1 Of 2)